

(12) UK Patent Application (19) GB (11) 2 147 100 A
SCIENCE REFERENCE LIBRARY Application published 1 May 1985

(21) Application No 8419819

(22) Date of filing 3 Aug 1984

(30) Priority data
(31) 8321239

(32) 5 Aug 1983

(33) GB

(71) Applicant
Orbec Limited (United Kingdom),
87 Limpsfield Road, Sanderstead, Surrey CR2 9LC

(72) Inventor
John Ernest Foster Holley

(74) Agent and/or Address for Service
A N Cohen,
Goddards, Manor Road, Tatsfield, Near Westerham,
Kent TN16 2ND

(51) INT CL⁴
G01N 1/18 C12Q 1/24

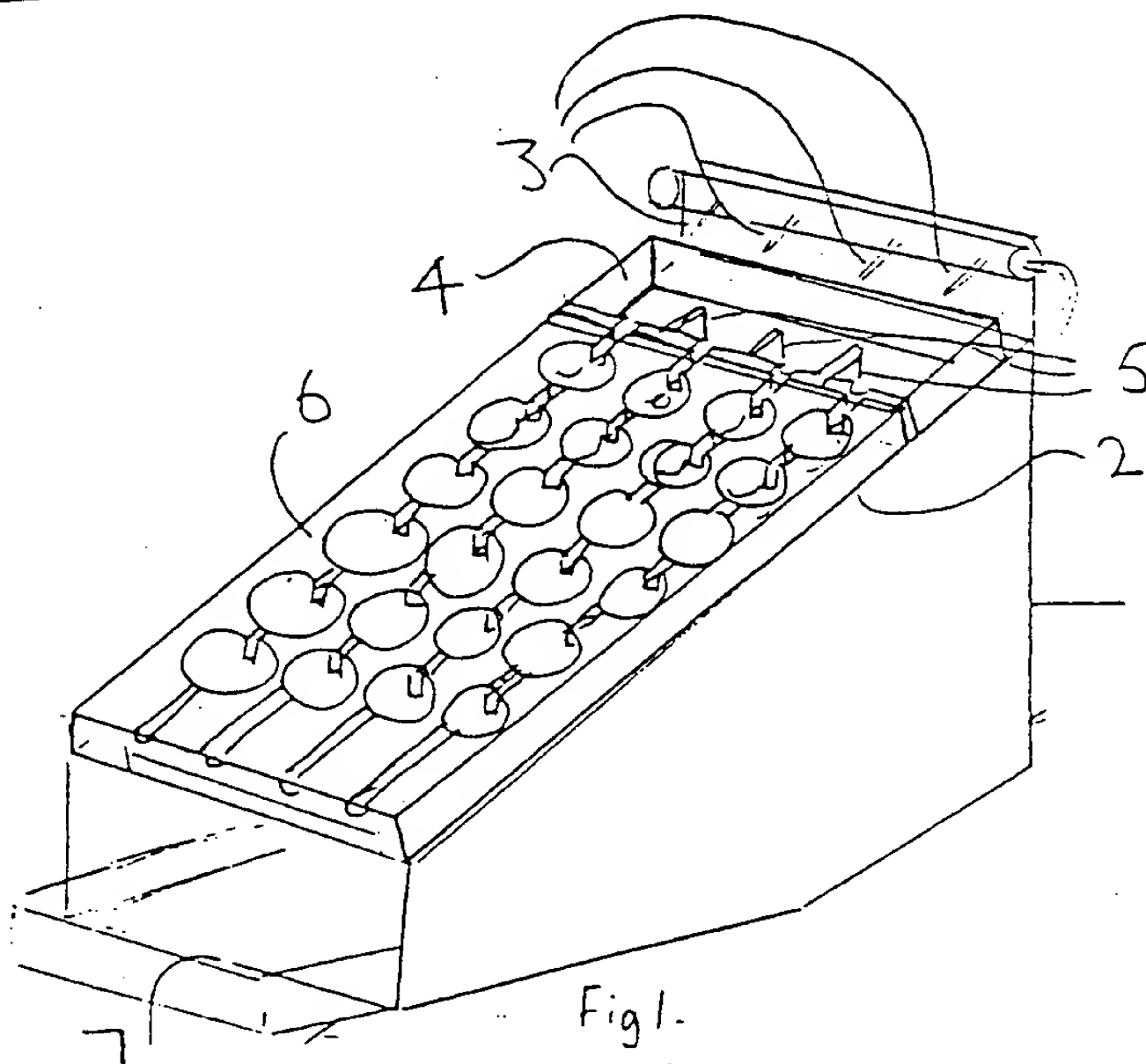
(52) Domestic classification
G1B CF
U1S 1068 G1B

(56) Documents cited
GB 1572596 GB 1436184

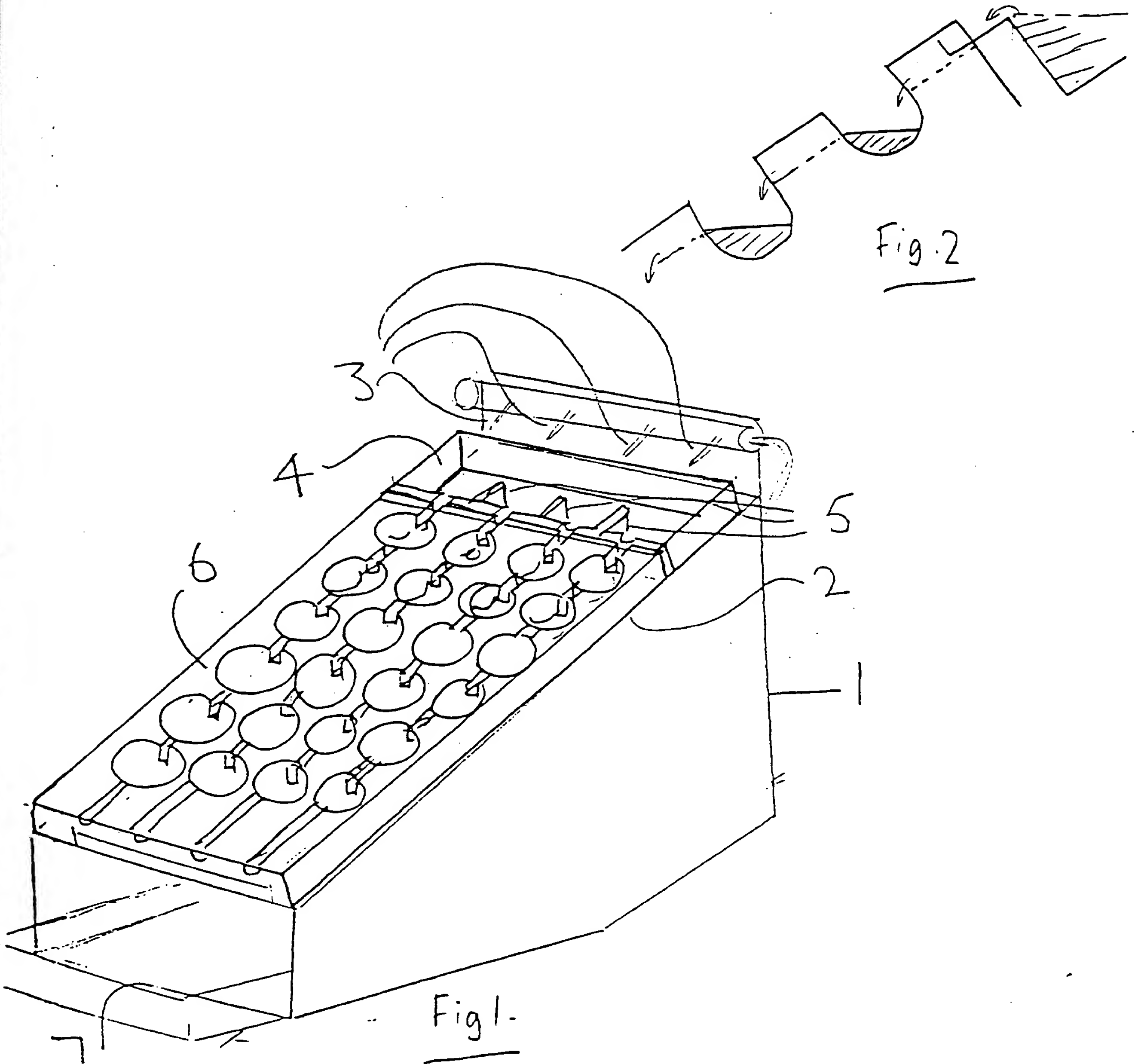
(58) Field of search
G1B

(54) Multiwell plate inoculating means

(57) A multi-well plate 6 has a channel connecting the wells in each row of wells. Liquid is introduced into a reservoir 4 at one end and the plate placed on support 2 at a pre-set angle to the horizontal. The liquid runs down the channels and fills the wells to a pre-determined level.



GB 2 147 100 A



SPECIFICATION

Innoculating means

- 5 This invention relates to a method and apparatus for automatically inoculating multi-well plates.

Multi-well plates are known which are used for carrying out a plurality of microbiological reactions. For example in the testing the effectiveness of antibiotics against a liquid sample a multi-well plate can have its wells inoculated with the sample, and a series of antibiotics inoculated into the wells. The plate can then be incubated and growth or otherwise in each well noted.

Typical multi-well plates have an array of wells set in a plate. A typical multi-well plate has an array of 4x8 wells, although other configurations are used.

It is a time consuming business to inoculate all the wells in a multi-well plate individually and the present invention relates to a multi-well plate and equipment to be used therewith which makes inoculation easier and quicker.

According to the invention there is provided a means to inoculate wells in a multi-well plate, which means comprises a support which is adapted to support a multi-well plate and which support can be adjusted to be at a range of angles to the horizontal, an inoculating system which comprises a reservoir for liquid and a liquid dispenser adapted to dispense liquid in separate channels to correspond to rows of wells in a multi-well plate so that the dispenser can inoculate each row of wells in a multi-well plate placed on the support by placing liquid in the reservoir and tilting the support so that the reservoir is at the higher end.

Preferably the multi-well plate has wells formed in it in rows and the wells in each row are interconnected by depressions made in the walls separating the wells in each row. Thus the preferred plate allows liquid to flow from well to well in a row when the plate is inclined.

In a preferred form of the apparatus of the invention there is a liquid storage means incorporated in the apparatus and means for readily transferring the liquid to the reservoir and hence to the liquid dispenser. The reservoir and liquid dispenser can form part of the same structure.

The dispenser can comprise a plurality of nozzles connected by tubing to the liquid storage means so that the liquid can be pumped up to flow out of the nozzles. Preferably the dispenser also incorporates a plurality of baffles which form channels which cooperate with the wells in a multi-well plate placed on the support.

At the bottom of the apparatus of the invention (when the apparatus is in use) there

is preferably a collector tray for the collected liquid.

As can be seen the maximum amount of liquid in any well in a multi-well plate which is placed at an angle to the horizontal will depend on the angle. If there is too much liquid it will overflow the edge of the well. Thus by adjusting the angle of a multi-well plate and dispensing excess liquid in the uppermost well the amount of liquid in each well can be predetermined. Preferably the apparatus is calibrated for a particular type of plate to give suitable alternative amounts of liquid in the wells.

The invention is further described with reference to the accompanying drawings in which Fig. 1 shows the apparatus in use and Fig. 2 shows a magnified view of a well.

The unit comprises a base 1 with support 2 adjustable to be at various angles. There is inside the base a liquid storage means and pump (not shown). Connected to the storage means and pump are nozzles 3. The nozzles discharge into reservoir 4. The reservoir 4 has baffles 5 defining channels.

When a plate 6 is placed on support 2 the channels line up with the rows of wells. In use the support 2 is placed at the predetermined angle and liquid pumped into reservoir 4. By means of grooves in plate 6 the liquid flows into all the wells.

The mechanism of flow is shown in Fig. 2. Excess liquid flows into tray 7.

Thus the wells are quickly inoculated.

CLAIMS

1. Equipment for inoculating wells in a multi-well plate which equipment comprises a support adapted to support a multi-well plate, which support can be adjusted to a range of angles to the horizontal and an inoculating system which comprises a reservoir for liquid and a liquid dispenser adapted to dispense liquid in separate channels, which channels correspond to rows of wells in a multi-well plate placed on the said support, the reservoir being positioned so that when the said support is placed at angle to the horizontal the reservoir is at the elevated end of the support.

2. Equipment as claimed in claim 1 in which there is a liquid storage means incorporated in the equipment and means for transferring the liquid from the liquid storage means to the reservoir and thence to the said liquid dispenser.

3. Equipment as claimed in claim 1 or 2 in which the dispenser comprises a plurality of nozzles connected by tubing to the liquid storage means and a plurality of baffles which define channels which channels cooperate with wells in a multi-well plate placed on the support.

4. Equipment as claimed in any one of claims 1-3 in which there is a tray for liquid

excess liquid dispensed by the liquid dispenser.

5. A process for inoculating wells in a multi-well plate which multi-well plate has wells formed in it in rows and the wells in each row are interconnected by depressions made in the walls separating the wells in each row, which process comprises placing the multi-well plate at an angle to the horizontal whereby each of the said rows of wells are at an angle to the horizontal and placing liquid in the wells at the elevated end of the said multi-well plate whereby liquid flows from well to well in each row of wells via the said depressions.

6. Equipment as herein described with reference to the drawing.

Printed in the United Kingdom for
Her Majesty's Stationery Office, Dd 8818935, 1985, 4235.
Published at The Patent Office, 25 Southampton Buildings,
London, WC2A 1AY, from which copies may be obtained.